Complete Summary

GUIDELINE TITLE

Management of diabetes mellitus.

BIBLIOGRAPHIC SOURCE(S)

Michigan Quality Improvement Consortium. Management of diabetes mellitus. Southfield (MI): Michigan Quality Improvement Consortium; 2008 Jun. 1 p.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Michigan Quality Improvement Consortium. Management of diabetes mellitus. Southfield (MI): Michigan Quality Improvement Consortium; 2006 Jul. 1 p.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Type 1 and type 2 diabetes mellitus

GUIDELINE CATEGORY

Counseling
Evaluation
Management
Prevention
Risk Assessment
Treatment

CLINICAL SPECIALTY

Endocrinology
Family Practice
Internal Medicine
Nursing
Ophthalmology
Podiatry

INTENDED USERS

Advanced Practice Nurses
Health Plans
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To achieve significant, measurable improvements in the management of diabetes mellitus through the development and implementation of common evidence-based clinical practice guidelines
- To design concise guidelines that are focused on key management components of diabetes mellitus to improve outcomes

TARGET POPULATION

Patients 18 to 75 years of age with type 1 or type 2 diabetes mellitus

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation

1. Periodic assessment
    - Physical examination
    - Cardiovascular risk factors
    - Eye and foot exam
    - Depression screen

2. Laboratory tests
    - Glycemic control
    - Renal function
    - Lipid status

Management/Treatment

1. Education, counseling, and risk factor modification
    - Comprehensive, individualized diabetes self-management education
    - Self foot care
    - Dental care
    - Preconception counseling

2. Medical treatment focused on smoking cessation, hypertension, lipids, and glycemic control
    - Antihypertensive therapy
    - Statins
    - Antiplatelet therapy
    - Insulin, sulfonylureas

3. Immunizations

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The Michigan Quality Improvement Consortium (MQIC) project leader conducts a search of current literature in support of the guideline topic. Computer database searches are used to identify published studies, existing protocols and/or national guidelines on the selected topic developed by organizations such as the American Diabetes Association, American Heart Association, American Academy of Pediatrics, etc. If available, clinical practice guidelines from participating MQIC health plans and Michigan health systems are also used to develop a framework for the new guideline.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence for the Most Significant Recommendation

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational studies
D. Opinion of expert panel

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Using information obtained from literature searches and available health plan guidelines on the designated topic, the Michigan Quality Improvement Consortium (MQIC) project leader prepares a draft guideline to be reviewed by the medical directors' committee at one of their scheduled meetings. Priority is given to recommendations with [A] and [B] levels of evidence (see "Rating Scheme for the Strength of the Evidence" field).

The initial draft guideline is reviewed, evaluated, and revised by the committee resulting in draft two of the guideline. Additionally, the Michigan Academy of Family Physicians participates in guideline development at the onset of the process and throughout the guideline development procedure. The MQIC guideline feedback form and draft two of the guideline are distributed to the medical directors, as well as the MQIC measurement and implementation group members, for review and comments. Feedback from members is collected by the MQIC project leader and prepared for review by the medical directors' committee at their next scheduled meeting. The review, evaluation, and revision process with several iterations of the guideline may be repeated over several meetings before consensus is reached on a final draft guideline.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

When consensus is reached on the final draft guideline, the medical directors approve the guideline for external distribution to practitioners with review and comments requested via the Michigan Quality Improvement Consortium (MQIC)

health plans (project leader distributes final draft to medical directors' committee, measurement and implementation groups to solicit feedback).

The MQIC project leader also forwards the approved guideline draft to appropriate state medical specialty societies for their input. After all feedback is received from external reviews, it is presented for discussion at the next scheduled committee meeting. Based on feedback, subsequent guideline review, evaluation, and revision may be required prior to final guideline approval.

The MQIC Medical Directors approved this guideline in June 2008.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The level of evidence grades (A-D) are provided for the most significant recommendations and are defined at the end of the "Major Recommendations" field.

Periodic Assessment

Assessment should include:

- Height, weight, body mass index (BMI), blood pressure **[A]** (adult target of <130/80)
- Assess cardiovascular risks (smoking, hypertension, dyslipidemia, sedentary lifestyle, obesity, stress, family history, age >40 years)
- Comprehensive foot exam (including monofilament testing annually) **[B]**
- Screen for depression **[D]**
- Dilated eye exam by ophthalmologist or optometrist **[B]**, or digiscope **[B]**

Frequency

- At least annually and more frequently as needed
- In the absence of retinopathy repeat in 2 years

Laboratory Tests

Tests should include:

- Hemoglobin A_1C **[D]**
- Urine microalbumin measurement **[D]**
- Serum creatinine and calculated glomerular filtration rate (GFR) **[D]**
- Fasting lipid profile

Frequency

Hemoglobin A_1C: 2 to 4 times annually based on individual therapeutic goal; other tests at least annually

Education, Counseling, and Risk Factor Modification

- Comprehensive diabetes self-management education (DSME) from a collaborative team or diabetic educator if available
- Education should be individualized, based on the National Standards for DSME **[B]** (see http://care.diabetesjournals.org/content/vol31/Supplement_1/) and include:
    - Assessment of patient knowledge, attitudes, self-management skills and health status; strategies for making health behavior changes and addressing psychosocial concerns **[C]**
    - Description of diabetes disease process and treatment, safe and effective use of medications; prevention, detection and treatment of acute and chronic complications
    - Importance of nutrition management and regular physical activity **[A]**
    - Role of self-monitoring of blood glucose in glycemic control **[A]**
    - Cardiovascular risk reduction
    - Smoking cessation intervention **[B]** and secondhand smoke avoidance **[C]**
    - Self-care of feet **[B]**; preconception counseling **[D]**; encourage patients to receive dental care **[D]**

Frequency

At diagnosis and as needed

Medical Recommendations

Care Should Focus on Smoking, Hypertension, Lipids, and Glycemic Control

- Medications for tobacco dependence unless contraindicated
- Treatment of hypertension using up to 3 or 4 anti-hypertensive medications to achieve adult target of <130 systolic **[B]** and <80 diastolic **[A]**
- Prescription of angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker in patients with hypertension or albuminuria **[A]** (Consider referral of patients with serum creatinine value >2.0 mg/dL [adult value] or persistent albuminuria to nephrologist for evaluation.)
- Statin therapy for primary prevention against macrovascular complications in patients with diabetes who are $\geq$age 40 or who have a low-density lipoprotein cholesterol (LDL-C) $\geq$100 mg/dL. **[A]** (Target LDL-C <100 mg/dL **[B]**. For patients with overt cardiovascular disease (CVD), a lower LDL-C goal of <70 mg/dL is an option **[B]**)
- Anti-platelet therapy **[A]**: low dose aspirin daily for primary prevention in adults at increased cardiovascular risk with type 1 **[C]** and type 2 **[A]** diabetes, unless contraindicated
- Adjust the plan to eventually achieve normal or near-normal glycemia with an A_1C goal for most patients of <7%. Less stringent treatment goals may be appropriate for patients with a history of severe hypoglycemia, patients with limited life expectancies, very young children or older adults and individuals with comorbid conditions. More stringent treatment goals (e.g., a normal A_1C < 6%) for individual patients and in pregnancy. **Note**: Insulin and sulfonylureas sometimes result in weight gain.

- Assurance of appropriate immunization status (tetanus, diphtheria, pertussis, influenza, pneumococcal vaccine) **[C]**

Frequency

At each visit until therapeutic goals are achieved

Definitions:

Levels of Evidence for the Most Significant Recommendations

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational studies
D. Opinion of expert panel

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence is provided for the most significant recommendations (See "Major Recommendations" field).

This guideline is based on several sources, including the 2008 American Diabetes Association Clinical Practice Recommendations (www.diabetes.org).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Through a collaborative approach to developing and implementing common clinical practice guidelines and performance measures for diabetes mellitus, Michigan health plans will achieve consistent delivery of evidence-based services and better health outcomes. This approach also will augment the practice environment for physicians by reducing the administrative burdens imposed by compliance with diverse health plan guidelines and associated requirements.

POTENTIAL HARMS

Insulin and sulfonylureas sometimes result in weight gain.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guideline lists core management steps. Individual patient considerations and advances in medical science may supersede or modify these recommendations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Approved Michigan Quality Improvement Consortium (MQIC) guidelines are disseminated through email, U.S. mail, and websites.

The MQIC project leader prepares approved guidelines for distribution. Portable Document Format (PDF) versions of the guidelines are used for distribution.

The MQIC project leader distributes approved guidelines to MQIC membership via email.

The MQIC project leader submits request to website vendor to post approved guidelines to MQIC website (www.mqic.org).

The MQIC project leader completes a statewide mailing of the comprehensive set of approved guidelines and educational tools annually. The guidelines and tools are distributed in February of each year to physicians in the following medical specialties:

- Family Practice
- General Practice
- Internal Medicine
- Other Specialists for which the guideline is applicable (e.g., endocrinologists, allergists, pediatricians, cardiologists)

The statewide mailing list is derived from the Blue Cross Blue Shield of Michigan (BCBSM) provider database. Approximately 95% of the state's M.D.'s and 96% of the state's D.O.'s are included in the database.

The MQIC project leader submits request to the National Guideline Clearinghouse (NGC) to post approved guidelines to NGC website (www.guideline.gov).

IMPLEMENTATION TOOLS

Chart Documentation/Checklists/Forms

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

This guideline is based on several sources, including the 2008 American Diabetes Association Clinical Practice Recommendations (www.diabetes.org).

DATE RELEASED

2004 Jul (revised 2008 Jun)

GUIDELINE DEVELOPER(S)

Michigan Quality Improvement Consortium - Professional Association

SOURCE(S) OF FUNDING

Michigan Quality Improvement Consortium

GUIDELINE COMMITTEE

Michigan Quality Improvement Consortium Medical Director's Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Physician representatives from participating Michigan Quality Improvement Consortium health plans, Michigan State Medical Society, Michigan Osteopathic Association, Michigan Association of Health Plans, Michigan Department of Community Health and Michigan Peer Review Organization

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Standard disclosure is requested from all individuals participating in the Michigan Quality Improvement Consortium (MQIC) guideline development process, including those parties who are solicited for guideline feedback (e.g., health plans,

medical specialty societies). Additionally, members of the MQIC Medical Directors' Committee are asked to disclose all commercial relationships.

GUIDELINE STATUS

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GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Michigan Quality Improvement Consortium Web site.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Diabetes checklist. (2 versions) Electronic copies: Available in Portable Document Format (PDF) from the Michigan Quality Improvement Consortium Web site.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on December 10, 2004. The information was verified by the guideline developer on January 21, 2005. This NGC summary was updated by ECRI on October 13, 2006. The updated information was verified by the guideline developer on November 3, 2006. This NGC summary was updated by ECRI Institute on December 15, 2008. The updated information was verified by the guideline developer on December 17, 2008.

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